

## **DECLARATION UNDER 37 C.F.R. 1.132**

I, Michael C: Davis, do hereby declare as follows:

- I was granted a Bachelor of Science degree in mechanical engineering from Virginia Polytechnic University in 1985; and a Master of Science in mechanical and aerospace engineering from the University of Virginia in 1987.
- 2. I have worked for the assignee of this patent application no. 10/664,708, E.I. du Pont de Nemours and Company, since 1987 and am an expert in fiber spinning technologies.
- I am familiar with the patent examiner's rejections in the outstanding Office Action, issued 16 August 2006, wherein the examiner has relied upon Zeldin et al. (U.S. Patent No. 5,225,018) to support the disclosure of Zucker (U.S. Patent Application Publication No. 2003/0129909) as to forming sub-micron fibers or filaments from a spunbonding fiber spinning technique.
- I am a co-inventor of U.S. Patent No. 6,548,431 (the '431 Patent), which discloses a high speed drawing technique for reducing the diameter of spunbond fibers produced by a conventional spunbonding apparatus. We began our investigations to obtain sub-denier spunbond fibers in about 1996 and completed said work in about 1998, which culminated in the filing of the '431 Patent. With considerable effort, we were able to make filaments as small as about 6 microns.
- I have considered the disclosure of Zeldin et al. and do not agree with the examiner's position that the devices disclosed by Zeldin et al. would permit the skilled artisan to spin sub-micron, continuous fibers. To my knowledge, it is not possible to obtain sub-micron fiber sizes with spunbonding technology. In spunbonding, the polymer viscosity must be high enough to support stable spinning and low enough to allow drawing. The drawing force, be it rolls or draw jet, is located at a distance from the spunbonding spinneret. In this space, the filaments cool and polymer viscosity increases to the point that the drawing forces which would be required to attenuate fibers to sub-micron diameters would break the fibers.
- 11. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge

that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Michael C. Davis

Date